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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,111	07/18/2001	Mark Fischer	MI22-1777	1837

21567 7590 06/14/2002

WELLS ST. JOHN P.S.  
601 W. FIRST  
SUITE 1300  
SPOKANE, WA 99201-3828

EXAMINER

DEO, DUY VU

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 06/14/2002

8

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/909,111

Applicant(s)

FISCHER ET AL.

Examiner

DuyVu n Deo

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 April 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12,13,16,21-23,47-50,53 and 56-63 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12,13,16 and 59-63 is/are allowed.
- 6) ☒ Claim(s) 21-23 and 47-50 is/are rejected.
- 7) ☒ Claim(s) 53, 56-58 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 21-23, 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crotti (US 4,957,881).

Crotti describes a method for forming an integrated circuit comprising: forming a conductive plug over the substrate between a pair of conductive lines and the conductive plug having an uppermost surface (claim 1<sup>st</sup> uppermost surface); etching the conductive plug to remove more material from the corner region than from the central region (fig. 4-9, col. 2-4). Unlike claimed invention, Crotti doesn't describe forming the conductive plug with which electrical communication with a bit line is desired in the process of forming DRAM circuitry. However, it would be obvious for one skill in the art that depending on the type of integrated circuit being fabricated the conductive plug can be formed electrically communication with a bit line because Crotti teaches a similar method as that of the claims having the same conductive material and conductive lines.

Referring to claim 23, Crotti doesn't describe the conductive plug having a width terminating over respective conductive lines of the pair of conductive lines. However, according to Crotti's teaching any conductive material over the respective lines of the pair of conductive lines will be removed. Therefore, it would be obvious to one skilled in the art at the time of the

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invention to form a width terminating over the pair of the conductive lines because they are not desired there in the first place and it would take less time to etch the corner of the conductive plug since there are less material to be removed.

3. Claims 48-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crotti and further in view of Fazan et al. (US 5,597,756).

Unlike claimed invention, Crotti doesn't describe forming two adjacent conductive plugs and forming and etching an insulative layer over the conductive plug with a contact opening. Fazan describes a method of forming a similar integrated circuit such as DRAM wherein he teaches forming several conductive plugs, which would be obvious to one skill in the art, and forming and etching an insulating layer on the conductive plugs (col. 3, line 15-col. 4, line 13). It would have been obvious for one skill in the art to modify Crotti in light of Fazan to form and etch an insulating layer on the conductive plugs because Fazan teaches further steps that would complete the fabrication of an integrated circuit started by Crotti. This modification would produce the claimed invention with an anticipation of an expected result.

***Terminal Disclaimer***

4. The terminal disclaimer filed on 4/22/02 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US patent 6,309,973 has been reviewed and is accepted. The terminal disclaimer has been recorded.

***Allowable Subject Matter***

5. Claims 60-63 are allowed because they are independent forms of the allowable depending claims 51, 52, 54, 55.

Claim 53, 56-59 remains allowed.

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Claims 12, 13, 16 are allowed because Crotti doesn't describe removing the material on the upper surface of the conductive without using masking material to define an uneven second upper most surface.

***Response to Arguments***

6. The term maximum width will be interpreted as any width because applicant has defined the term doesn't have any precise value and is not relevant to the claim language.

Referring to applicant's argument that Crotti doesn't beveling at least one corner of the conductive plug as cited in claim 21. It would be obvious that the conductive plug would be material being formed between conductive lines 6. As shown in figures 4-6, the material or conductive plug between conductive lines 6 has a corner where extra material being removed.

Referring to claim 23, Crotti doesn't describe the conductive plug having a width terminating over respective conductive lines of the pair of conductive lines. However, according to Crotti's teaching any conductive material over the respective lines of the pair of conductive lines will be removed. Therefore, it would be obvious to one skilled in the art at the time of the invention to form a width terminating over the pair of the conductive lines because they are not desired there in the first place and it would take less time to etch the corner of the conductive plug since there are less material to be removed.

Referring to claim 48, as described above, it would be obvious that the conductive plug would be material being formed between conductive lines 6; therefore, the width of a conductive plug can be defined as from the corner of the conductive line 6 to the middle of the conductive line 6. And since all material at and beyond the corner of the conductive plug is removed,

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leaving the conductive plug in the contact hole, the width of the conductive plug is definitely is reduced.

*Conclusion*

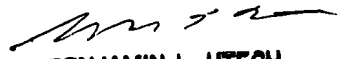
7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n Deo whose telephone number is 703-305-0515.

DVD

June 14, 2002

  
**BENJAMIN L. UTECH**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 1700**